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Environment and development:

A CIDA perspective

88-00081/

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Environment and development:

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**A submission
to the World Commission
on Environment
and Development**

May, 1986

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Published under the authority of the Honourable Monique Landry, Minister for External Relations

Produced by the Public Affairs Branch
Canadian International Development Agency (CIDA)
200 Promenade du Portage
Hull, Quebec

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Cat. No. E94-71/1986E
ISBN 0-662-14773-1

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Foreword

The formation of a World Commission on Environment and Development is most appropriate, coming at a time of unprecedented pressures on the global environment and widespread recognition that some of today's development is not sustainable. We are moving along paths of economic growth without clearly understanding the costs we are imposing on our natural environment, on our resources and on the biosphere—and thus on our shared future.

In the industrialized world, major environmental problems stem from the careless and excessive use of certain technologies and resources. In the developing world, problems differ in kind and degree. They concern not only the threat to human health, but also the threat to the natural resource base. Developing countries are facing an unprecedented environmental crisis from over-exploitation and exhaustion of renewable resources, the rate and scale of which is expanding. Poor understanding and mismanagement of their vital resources have led to soil erosion and land degradation, deforestation and the fuelwood crisis, excessive population pressures on the land and water management problems.

Yet, most experts believe that today's pressures on the planet's environment and resources are insignificant compared to what they are likely to be 20 years from now. Clearly, lessons have to be drawn and new paths need to be explored if development is to succeed. This is precisely what CIDA's submission attempts to do: it looks back to draw the lessons needed to make assistance more efficient in the present; it looks ahead to set up desirable policies and strategies. In the words used by the Commission, it shifts from an agenda dealing with environmental effects to one that focuses on causes and on prevention rather than on reactive cures.

CIDA's submission tries to assess the real causes behind the steady deterioration of the environment in Third World countries; it reviews some of the lessons learned by both donor and recipient countries; it underlines the Agency's attempts to address development and environmental issues; and it suggests some alternatives and solutions. CIDA is honored to have been asked to participate in the search for new approaches, perspectives and policies for dealing with these national and international challenges. We were anxious to take part because we share with the Commission the firm belief that lasting development rests upon a sound natural environment. Experience has taught us that the development process is likely to be inefficient and the benefits short-lived in the absence of a true concern for the environment. In Third World countries, land misuse, deforestation, desertification and water scarcity are all closely tied to poverty and population pressures.

Poverty is a self-sustaining, self-generating process that compels people to live in a way which destroys valuable soils, water resources and forests. Much of the environmental degradation is the result of the desperate search of the poor and the landless for such basic needs as fuel, food and water. Small farmers are held responsible for environmental destruction as if they had a choice of resources to depend on for their livelihood, when really they don't. In the context of basic survival, today's needs tend to overshadow consideration for the environmental future. It is poverty that is responsible for the destruction of natural resources, not the poor.

Poverty and environmental degradation are often compounded by rapid population growth, which translates into increased human needs and intensified pressures on already scarce resources. The problem is not simply one of numbers; it is far more complex. It involves land sustainability, relationships between people and the environment, degradation of natural resources and underdevelopment. A major consequence of rapid population growth is the inevitable increase in the numbers of absolute poor. Population growth is both a cause and an effect of poverty. Both tend to create groups of environmental refugees. To sum up the situation in many developing countries, rapid population growth, mass poverty, environmental degradation and slow economic growth interact with one another in ways that are harmful to both the immediate and the long-term well-being of the people involved.

The basic question today is not whether to choose between environment and development. Rather, it is how to select patterns of economic development which are environmentally sound. International cooperation is essential in devising a global economic system that responds to the needs of Third World countries as well as of the industrialized nations. Not only must we find more effective tools to treat the symptoms of environmental mismanagement, we must also address its root causes: poverty and population growth, crippling debt, unfair terms of trade, stationary aid budgets and underdevelopment.

CIDA is currently re-evaluating its programs in the light of environmental concerns. In reviewing its

performance, the Agency found that certain universal lessons seem to emerge from bilateral and multilateral donor activities. Some of the key lessons learned include the recognition that in the past decade, some projects have not succeeded because they were not environmentally sound, and therefore not sustainable. These failures often resulted from a lack of understanding about the complex links between resources, population, environment and development. Others have achieved the objectives set for them, but have not contributed significantly to genuine development. Donor and recipient countries alike can improve their development programs by emphasizing environmental management and rehabilitation, by focusing on the needs of the people, particularly the marginal groups, and by widening the debate on environment and development so as to achieve community support.

Since its creation in 1968, CIDA has devoted considerable attention to environment and resource management issues. Part of our submission describes the various ways in which the Agency lends support to environmental development projects in Asia, Africa, Latin America and the Caribbean; it reviews some of CIDA's basic thrusts, and it shows some of the achievements made in integrating environmental guidelines into the Canadian development assistance program. In spite of this progress, CIDA is fully aware that it will have to continue to improve its performance. We firmly believe that development assistance should be made more sustainable, more attuned to the needs of the people, and, therefore, of more value to all, including Canadians. In other words, to be meaningful, development assistance has to concentrate more on the impoverished and the malnourished so as to meet their basic needs in a healthier natural environment.

The submission also addresses some of the main issues raised by the Commission. For instance, it examines the close links between environment and population, food security, agriculture, energy, forestry and industry, and the growing concern about human settlements and the environment.

The final section looks at some of the challenges and opportunities that lie ahead. We now possess a good understanding of some of the factors that are shaping our future. Population growth and poverty emerge as dominant elements in developing countries, influencing and cutting across all major sectors of activity. The 21st century will see a doubling of human population with greater pressures on natural resources. Half a billion people are already undernourished. Millions more will be added each year. Without substantial changes in the management of water, land, air and forest resources, it will be difficult to support the population projected for the next century. Other ecological disasters are not in the future, they are happening now. If these environmental issues are not addressed, a future world scenario will include increased poverty and national and international violence from which the industrialized countries will not remain unscathed.

The future, in large part, depends on the way we deal with the seriousness of a global-scale depletion of our resources. National and international actions are needed to ensure that appropriate technologies are made available in order to increase productivity; and greater emphasis will have to be placed on improving the welfare of marginal groups, particularly women and the landless.

We have the tools, the knowledge, and the skills to build a more secure and more sustainable world. What is needed is greater political will, increased international cooperation and greater community involvement. Environmental progress requires the support of an informed and alert public in developed and developing countries. We must think and act more as citizens of one world. We live on a planet with finite resources, a planet irrevocably interdependent.

We share a common heritage as well as a common future. We have a responsability to manage the world's resources for the benefit of present and future generations.

Some years ago, a group of American scientists—frightened by the threat of nuclear war and a nuclear winter—put before the world community the image of what they called the DOOMSDAY clock. They set the hands of the clock a few minutes before midnight—the time or threshold of nuclear war. Their assessment may have seemed apocolyptic; but the risks remain perilously close.

I wonder whether there may not be other faces on that clock—as there are on the Peace Tower on Parliament Hill. Does one of the faces show us the time we have before we reach the critical hour of midnight when the damage we are inflicting on our natural and human environment becomes irreversible?

It is our hope that the Commission will arrive at conclusions and recommendations for environmentally sound economic and social development. Developed and developing countries desperately need your guidance. It will then be a matter of mobilizing the political will—nationally and internationally—to act together.

Geoffrey Bruce
Vice-President, Business Cooperation Program

Environment and development

Environment in the development process: defining the term

Over the years, the environment has come to mean different things to different people in different contexts. It is one of those encompassing words that defies a tight and rigorous definition. Environment can apply to the specific inputs in resource-based industries — soils for farming, trees for forestry, water for hydroelectric power; to natural forces — climate, weather, wind, sea conditions, pest and insect infestations; to the complex, interacting, physical-biological-chemical forces of the global ecosystem; and to the preservation of the planet's life-support system.

In the development context, environment means:

An approach to development. The environment provides both the basis for and the limits to economic development. Without due consideration for it, development cannot last.

A trans-sectoral issue, whose complexity and ramifications for development must be recognized and understood.

A component of sound resource management, which plays a major role in most sectoral and regional development projects.

A sector of activity, whose projects and programs aim at creating environmental benefits through the management and rehabilitation of natural resources.

A method of assessment, a set of tools and training techniques to identify and reduce the negative environmental impacts of proposed projects or programs.

An institutional framework, through which environmental activities can be carried out by both donor agencies and host nations.

In this submission, the Canadian International Development Agency (CIDA) will explore the different dimensions of the environment, underlining their links with sustainable development.

Examining the issues

Only a decade ago, environmental measures and policies were perceived as a constraint to economic growth. Today, the environment is seen as providing both the basis of and the limits to economic development. Experience has shown that the development process is likely to be inefficient and the benefits short-lived in the absence of a general concern for, and specific attention to, environmental issues. This reality has been logically extended from the development process to development assistance, although significant differences exist between the two fields. Like environment, development needs to be better assessed in all its dimensions. It is much larger and more encompassing than just development assistance.

Development is the process by which societies change so that they are able to meet the basic needs of their populations, in a way that is sustainable in the long term, and is based largely on indigenous resources and values. Development is more profoundly affected by factors such as international trade, investment and debt financing than by donor assistance. For example, developing countries earn 40 times more through trade than they receive in aid, and they finance over 80 per cent of their development from domestic savings and investment. Trade and investment have been identified by the World Commission on Environment and Development as being as important to economic and social progress as development assistance, although both issues extend well beyond CIDA's range of activities.

At present, debt problems are seriously hampering the efforts of Third World countries to sustain their economic growth. Collectively, developing countries face almost $1 trillion in outstanding debts, with problems concentrated in a small number of countries whose debt arises mainly from development assistance, and a few advanced countries which borrowed massively from commercial sources at high interest rates, and now suffer from depressed export markets and decreasing revenues.

CIDA's assistance program takes into account the economic situations of countries, and supports the efforts of the most vulnerable. Since 1977, all least-developed country (LLDC) programs have been provided strictly on a grant basis (extended to all recipient countries in 1986). CIDA is also flexible in using its support mechanisms. In some instances, where balance-of-payments assistance is appropriate, programs are designed to provide commodities and/or food products. In emergency situations, the Agency has developed a quicker disbursing facility so as to be more efficient in relief operations.

Development assistance projects exhibit special features: they are implemented in a sovereign

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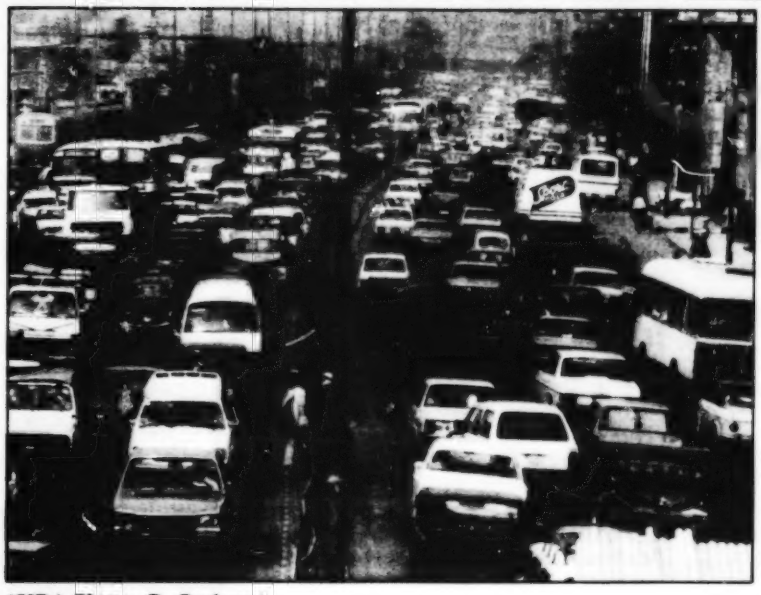

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(CIDA Photo: P. Chiasson)

foreign country and are therefore not under donor control; the constraints which create the need for development assistance also create problems in delivering that assistance; and development projects are implemented in fragile economies and involve costs and benefits, inputs and outputs which are not easily identifiable or quantifiable. Development is a long-term, high-risk process involving major changes within a society. Assistance projects normally require years of involvement and investment to achieve the desired economic and/or social objectives.

The success of development assistance to date, despite its shortcomings and limitations, clearly indicates the value and the importance of its contribution. It has helped improve the lives of hundreds of millions of people all over the world. The appalling crisis in Africa has tended to overshadow the accomplishments of Third World countries and the enormous progress achieved by their people. Yet, significant progress has been made in the last 20 years: per capita income has doubled in many countries despite oil price increases, huge population growth and the recession; infant mortality has been cut by half, while life expectancy has risen by more than 10 years; the enrollment level in primary schools and the adult literacy rate have doubled, while female enrollment has tripled; and never before in history have there been so many people who can read and write. Developing countries have also improved agricultural production at an impressive rate, with India now self-sufficient in grain, and Bangladesh and Pakistan making strides toward self-sufficiency. The success stories are numerous, the progress is real. Most of the credit for these achievements belongs to the people of the developing countries themselves, but development assistance has played a crucial role. Without the essential technology, material assistance and training provided by international donors, progress would have been much slower.

Canada's official development assistance program

Before discussing some of the basic issues relating to the environment and development assistance, CIDA would like to provide the Commissioners with an overview of the Canadian development cooperation program.

Canada's official development assistance (ODA) program is working toward creating an international economic system that will provide more equitable distribution of resources and opportunities. The main goal of this thrust is to support the efforts of Third World countries to achieve long-term sustainable economic and social progress so that all their people can improve their lives and take part in their country's development.

Canada provides assistance for humanitarian, political and economic reasons. **Humanitarian** concerns are the bedrock of the ODA program, expressing, for religious or ethical reasons, a Canadian belief in social justice and in improving the living and working conditions of the poor in developing countries. **Politically**, Canada believes it important to support efforts to increase international stability and improve the chances for peace in the world. **Economically**, Canada believes in promoting and expanding world trade and in supporting the efforts of developing countries to achieve self-sustaining growth.

In 1984-85, Canada allocated $2.1 billion to international development efforts (.49 per cent of the gross national product), ranking Canada among the 10 principal donors of the Development Assistance Committee of the Organization for Economic Cooperation and Development. Assistance is provided through a comprehensive range of delivery channels.

The major responsibility centre for ODA is the Canadian International Development Agency, which manages about 75 per cent of the aid program ($1.7 billion in 1984-85). In addition, the Department of Finance provides Canada's contribution to the World Bank and its concessional funding arm, the International Development Association. Canada contributed over $207 million to these institutions in 1984-85. The International Development Research Centre (IDRC) supports the efforts of developing countries to build up their own research capabilities, providing $84.6 million toward these efforts in 1984-85. The Department of External Affairs contributes to the regular budgets and voluntary funds of several multilateral organizations, such as the World Health Organization, the Food and Agriculture Organization and the UN Environment Program (UNEP). Canada Post and National Health and Welfare also support international activities. Together, these sources provided $50.5 million in 1984-85. The Petro-Canada International Assistance Corporation (PCIAC) disbursed over $53 million in 1984-85 on development projects for oil and gas exploration to assist developing countries in their efforts to reduce their fuel imports. Provincial governments are also involved in international development, contributing $10 million in 1984-85 to assist the work of non-governmental organizations (NGOs).

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CIDA's approach to development

CIDA's basic objective is to facilitate the efforts of developing countries to achieve sustainable economic and social development in accordance with their needs and environment. CIDA focuses its efforts on the least-developed countries, paying special attention to the neediest groups. Assistance is provided through:

- Bilateral (government-to-government) Programs, which finance more than a thousand projects in over 90 developing countries in Africa, Asia and the Americas. Aid is used for, among other things, infrastructure projects, rural and agricultural development, lines of credit and technical assistance.
- Multilateral Programs, which support the worldwide development efforts of some 85 international organizations, including United Nations agencies, development banks, humanitarian institutions and other international groups seeking solutions to the problems of world development.
- Special Programs, which fund more than 3,000 grass-roots projects sponsored by Canadian institutions and voluntary groups.
- The Business Cooperation Program, which supports the initiatives of Canadian businesses involved in development efforts.
- Canadian food aid, which serves both humanitarian and developmental purposes, and is provided through multilateral institutions, bilateral arrangements with specific countries, and non-governmental organizations.

Table 1 provides an overview of the delivery of Canadian development assistance.

The poor have long been a priority for CIDA. In its *Strategy for International Development Cooperation, 1975-1980*, Canada pledged to concentrate assistance in countries at the lower end of the development scale, giving priority to projects and programs aimed at meeting the basic needs of the poorest people, with an emphasis on building self-reliance. To meet this goal, CIDA focused to a greater extent on the most crucial problems of world development: food production and distribution, rural development, education and training, public health and demography, and shelter and energy. CIDA pursues this policy in its bilateral program (with 80 per cent of bilateral funds devoted to low-income countries), by supporting NGOs, and through international forums.

Within the framework of what has often been called the North-South dialogue, Canada played an active role in attempting to bridge the gap between industrialized and developing countries. In 1977, for example, during the Conference on International Economic Cooperation in Paris, Canada took the lead in pledging that all further assistance to least-developed countries would be in the form of grants (a policy extended to all recipients of Canadian assistance in March 1986). As well, Canada forgave the debts that 12 LLDCs had incurred as a result of previous Canadian aid — an amount totalling $231.89 million. In addition, Canada played a major role in the UN Conference on LLDCs in September 1981, where the decision was made to implement a new special program of action for LLDCs and to provide .15 per cent of gross national product in assistance to these countries.

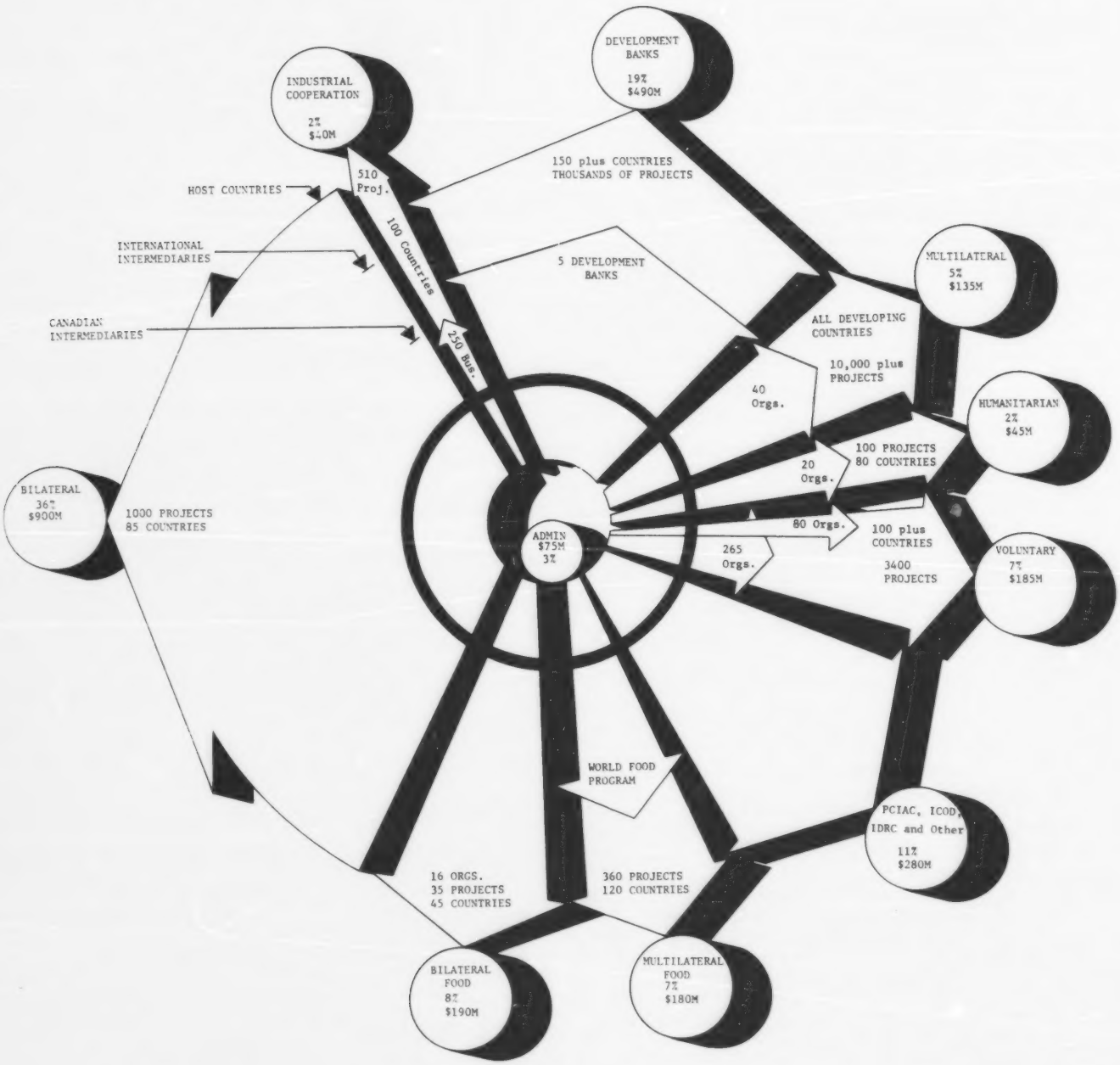
In focusing on the poorest groups, CIDA gives special emphasis to women, who constitute one of the most disadvantaged groups in developing-country societies. Until recently, development planners, decade after decade, ignored the vital role of women in such crucial sectors as agriculture, nutrition, water, sanitation, health, population and energy. Yet women account for two-thirds of the world's work hours, and produce 60 to 80 per cent of the food in Africa and Asia, and 40 per cent in Latin America. They officially constitute only one-third of the world's labor force, receive only one-tenth of its income, and own only 1 per cent of its property. CIDA's objective is to integrate women of the Third World into the development process, for if development is to be effective, both women and men must be included. CIDA undertakes to ensure that the full range of its development assistance will contribute substantively to the realization of the full potential of women as agents and as beneficiaries of the development process.

In implementing its programs, CIDA focuses on three crucial aspects of development, where the needs are immense:

Agriculture, including fisheries and forestry. For most developing countries, agriculture is the cornerstone of economic growth and social stability. Their populations are largely rural, and subsistence farming is often the main occupation. According to UNICEF, the bulk of the absolute poor live in rural areas and are unable to obtain the basic necessities of life. For CIDA, the main objectives of food aid — of which Canadians are the largest per capita

Table 1

Delivery of Canadian Development Assistance (1986)



donors in the world — and aid to the agriculture sector are to alleviate hunger, malnutrition and poverty, and to contribute toward greater food security in developing countries.

Energy. Much of the developing world is facing an energy crisis — a shortage of fuelwood. A recent Food and Agriculture Organization (FAO) survey of 95 developing countries found that 80 per cent of their populations are dependent on fuelwood for energy. The search for fuelwood is leading to increased erosion and turning arable land into desert — with devastating consequences on agriculture. Canada has one of the highest percentages of bilateral assistance devoted to energy among donor countries.

Human resource development, which includes education in its broadest sense. Only by improving the skills and capabilities of its people can a developing country ensure that development will be indigenous, will serve national goals, and will reduce dependencies on foreign assistance and technology. Illiteracy retards development, reduces an individual's contribution to the community and makes a human being dependent and subject to exploitation. Throughout Canada's aid program, people are emphasized as being both the means and the end of development, with the objective of increasing skilled human resources, reaching target groups bypassed by economic growth, and meeting basic human needs as a means of improving labor productivity and the well-being of the population as a whole. Efforts are made to improve managerial and other skills so that projects can flourish after Canadians have returned home.

CIDA's concerns for the environment

For most Canadians, the '70s were a period of rising environmental awareness and concern, with the media, pressure groups, and non-governmental organizations all playing a part in popularizing the issue. Over the last decade, in fact, polls have confirmed that Canadians are more concerned about the environment than most other issues. While specific concerns vary from year to year, public support continues to grow for greater government action and for preventive strategies instead of "react and cure" policies.

This level of environmental concern runs through all economic and social sectors, including government; and it can be seen at the national as well as the international level, where Canada has for some time been at the forefront of environment initiatives.

Individual Canadians have also played a key role on the international environmental scene, often initiating and supporting actions and strategies aimed at increasing the level of understanding about environmental issues. Some have achieved an international reputation, often insufficiently recognized in Canada.[1]

From its creation in 1968, CIDA has devoted considerable attention to environment and development issues in all its delivery channels. As early as the 1970s, CIDA expressed concern about the link between environment and poverty. It played a significant role at the 1972 Stockholm Conference on the Human Environment, and it helped establish and coordinate the 1976 UN Conference on Human Settlements. The year before, CIDA released its *Strategy for International Development Cooperation, 1975-1980*, which focused on the "basic needs" approach to development.

During the '80s, CIDA has moved further in its consideration of environmental issues. Recognizing the intimate linkages between development and environment, CIDA has a growing number of projects designed to benefit the environment through the preservation, protection and management of natural resources. For example, more than half of CIDA's forestry projects have an environmental component, while most integrated rural development projects include an afforestation component. In Anglophone Africa, the Ghana forest sector analysis project has been praised by an independent group as one which balances economic development objectives with the need for sustainable development. In addition, a number of projects are aimed at training and education, including institution-building in schools of forestry in several countries. In Francophone Africa, CIDA's Sahel program focuses on re-establishing an ecological and social balance in the region through activities such as the stabilization of vegetation cover, the restoration of the food balance and the promotion of renewable energy sources available to the local people.

A brief review of current CIDA projects in Asia indicates resource identification in Bangladesh, Nepal, Indonesia, Malaysia and Thailand; forestry projects in China, India, and Indonesia; and fisheries development projects in Indonesia, the Philippines, Malaysia, and Thailand, as well as a regional project for the Association of Southeast Asian Nations. There are conservation and land

management projects in China, India, Indonesia and Pakistan, agricultural water projects in Bangladesh, India, Indonesia, Pakistan, and Sri Lanka, projects to resettle landless families in India and Sri Lanka, and drinking water and sanitation projects in Bangladesh, China and Pakistan.

In the Americas, resource identification projects are under way in Colombia, Peru, Jamaica and Honduras, and a regional project is providing the Caribbean islands with a marine resource survey. In Honduras, Peru, Guyana, Haiti, Jamaica and the Leeward and Windward Islands, projects to improve forestry management are being implemented. In Latin America, a project is contributing to the development of aquaculture technology in the region. Conservation and land management projects are being implemented in Colombia for the protection of watersheds, and in Brazil for the improvement of soil management. Human settlement projects are under way in Costa Rica and Colombia. Initiatives to improve drinking water and sanitation are being carried out in Guatemala, Honduras, Nicaragua, Peru, Guyana and the Leeward and Windward Islands, and projects designed to fight industrial pollution and to protect the natural resource base are in operation in Colombia, Jamaica and throughout the Caribbean region.

One of the keys to adequate environmental protection is proper training and education. In the late '70s, training and institution-building was singled out as a sector in which CIDA could improve its performance. And it did. Human resource development is now one of CIDA's priorities. In 1980, the Agency created the Institutional Cooperation and Development Services (ICDS) Division to strengthen the capabilities of professional and educational institutions in Third World countries.

One of many examples of efforts in this field is the Environmental Management and Development Institute in Indonesia (EMDI), jointly sponsored by CIDA and Dalhousie University in Halifax. The $5 million project, shared about equally between CIDA and the Government of Indonesia, will expand Indonesia's capabilities in environmental management by providing training and education in such fields as impact assessment and environmental law to government agencies, university environmental centres, NGO representatives and private consultants. CIDA's Indonesia program has also introduced environmental elements in water resources, energy, forestry and other sectoral activities. In Kenya, CIDA's program has involved support for environmental education and activities, while environmental institution-building projects are being carried out in Indonesia, Pakistan, Thailand and India.

CIDA has made substantial progress in integrating environmental matters into the Canadian development assistance program, and concrete action has been taken at the program level to address environmental concerns. In spite of this progress, CIDA is fully aware that it needs to continue to improve its performance in this area. In the past decade, some projects have failed because they were not environmentally sound, and therefore not sustainable. These failures often resulted from a lack of understanding about the complex links between resources, population, environment and development. Others have achieved the target objectives set for them, but have not contributed significantly to genuine development.

CIDA believes that development assistance should be more sustainable, more relevant to the needs of the people, and therefore of more value to all, including Canadians. Consequently, it intends to strengthen its efforts to promote environmentally sound development projects.

In pursuing these efforts, CIDA can rely on a professional reservoir of national skills and capacities in a variety of fields, including agriculture, forestry, fisheries, energy, engineering, health, water resources, training and education. Canadian experience in environmental management is rapidly growing and gaining international recognition. Canadian universities are a strong repository and source of skills in all aspects of environmental planning, with over 45 of them offering courses in environmental science. More than a dozen offer extensive services in a wide spectrum of disciplines. Canadian businesses have also improved the tools required to better assess environmental questions. The Canadian reputation in resource inventory, remote sensing and mapping is world-renowned, and recent years have seen the steady growth of environmental expertise and integrated resource planning capability. The systematic collection, storage and analysis of resource and related socio-economic data enables better country program planning and better monitoring of resource trends, while permitting the development of an early-warning system for areas of future concern. A Canadian company has just devised a computer-based system for making maps from digital imagery. This breakthrough will enable CIDA to move ahead on regional planning with a view to enhancing overall management of all existing natural resources.

FOOTNOTE

1. Professor Ian Burton of the University of Toronto chaired a Scientific Committee on Problems of the Environment. Maurice Strong is considered by many as one of the world's leading environmental authorities. Morris Miller acted as Deputy Secretary General of the UN Conference on New and Renewable Sources of Energy. The proposal to establish the World Commission on Environment and Development was designed and introduced into the UN by Geoffrey Bruce, the Canadian representative to the Council of UNEP in 1981 and now Vice-President of CIDA's Business Cooperation Branch. David Munro, formerly of the Department of Energy, Mines and Resources, was Director General of one of the most distinguished environmental pressure groups: the International Union for the Conservation of Nature and Natural Resources (IUCN). Jim MacNeill has been director of the OECD Environment Directorate, and is Secretary General of the WCED. Some of Canada's best scientists have worked on international agency programs for environmental analysis and solutions.

Sharing growing concerns: environmental degradation and economic collapse

Assessing the real causes

In Third World countries, land misuse and abuse, deforestation, desertification and water scarcity problems are all closely tied to poverty and population pressures. According to the Food and Agriculture Organization, nearly half the rural people of these countries live below the official poverty line, 500 million of them consuming less than the minimum daily calorie requirement. Poverty is a self-sustaining, self-generating process that compels people to live in a way which destroys valuable soils, water resources and forests. Much of the environmental degradation in the Third World is the result of the desperate search of the poor and the landless for such basic needs as fuel, food and water. Most of the time, they have nowhere else to go but deeper into the forests and further up on the slopes, to fragile and marginal lands.

Economic problems and widespread poverty are now recognized as conditions which force people to misuse their natural resources. Peasants are held responsible for environmental destruction as if they had a choice of resources to depend on for their livelihood. But when their reality is basic survival, today's needs tend to overshadow consideration of the environmental future. It is poverty that is responsible for the destruction of natural resources, not the poor.

Governments with limited resources find it difficult to tackle these problems because of their huge scale and the number of people involved: thousands of villages and millions of people are locked into a cycle of resource destruction and poverty. Most of the time, these countries face slow economic growth, crippling debt and unfair terms of trade. Furthermore, they lack the indispensable technical and financial resources needed to protect the environment and natural resources. These governments can do little to prevent their poor from mortgaging the country's future. The environment cannot be improved in conditions of poverty, and poverty cannot be overcome without development and higher standards of living. Only economic and social progress is capable of breaking the vicious circle of poverty and land degradation.

Some analysts have pointed out that in examining environmental problems, poverty cannot be viewed in isolation. There exists, they say, another form of pollution and environmental degradation: the pollution of affluence found in the industrialized world, and also in some developing countries. They argue that overconsumption and the wasteful use of resources by both developed and developing countries pose a threat to the environment comparable to poverty.

Some critics have linked the absurdity of hunger to excessive consumption in the North. The fact that about 25 per cent of the world's population consume 75 per cent of the world's wealth gives weight to claims that the North has an insatiable appetite that cannot be satisfied if Third World countries are to be given a chance for sustained development. Never in world history has there been so much waste together with so much destruction of the environment. Further, the gap between rich and poor countries has been widening, nearly doubling between 1955 and 1980. While industrialized countries have witnessed steady improvements in their standards of living, the 36 least-developed countries have experienced insignificant growth: from U.S. $91 per capita in 1971 to U.S. $101 per capita in 1980. The economic prospects for most of them remain poor and many are in an even more desperate position than 10 years ago. The growth patterns founded on existing economic differentials are likely to continue well into the next century, unless major changes are brought to the international economic order.

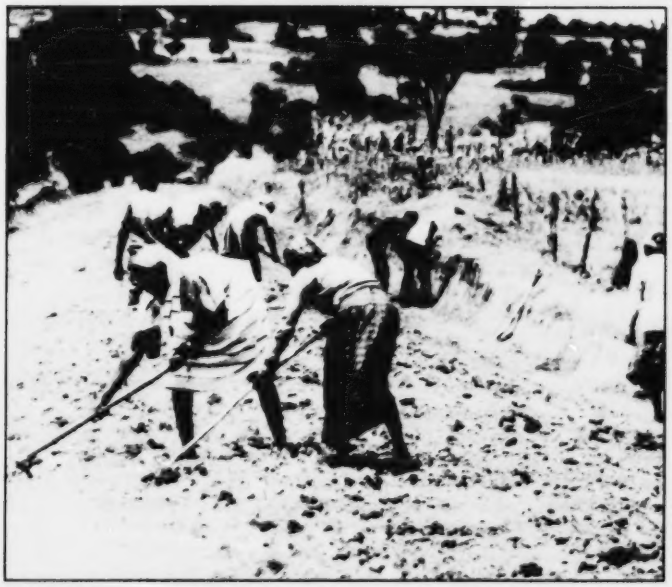
Poverty and environmental degradation are often compounded by rapid population growth, which translates into increased human needs and intensified pressures on existing resources, often resulting in a deteriorating human and natural environment. With more mouths to feed, more land is needed to grow more food. Population pressures drive farmers onto increasingly marginal land where yields are lower, erosion is worse and rainfall is less reliable.

In the least-developed countries, rapid population growth has offset the few economic gains registered. It has undercut economic progress, reduced income and diminished the quality of life for millions of people. The problem is not simply one of numbers; it is far more complex. It involves land sustainability, relationships between people and the environment, degradation of natural resources and underdevelopment.

In the last 100 years, world population has increased from about 1.5 to 4.8 billion people, practically doubling in the last 30 years. According to the latest estimates, the world's population is likely to reach five billion within the next five years, over six billion by the year 2000, and about 10 billion before stabilizing in the late 21st century. Popula-

(CIDA Photo: D. Barbour)

(CIDA Photo: P. Chiasson)



(CIDA Photo: J. Holmes)

(CIDA Photo: D. Barbour)

tion growth has leveled off in the industrialized world, while developing countries are expected to double their population in about 40 years, compared to the 30 years it took previously.

A recent study examining the capacity of developing countries to produce food in relation to population growth shows a major crisis ahead. By the year 2000, 1.7 billion people will be living in over 60 countries that are unable to feed their populations from their own lands.

Population growth is both a cause and an effect of poverty, and a major consequence of rapid growth is the inevitable increase in the numbers of absolute poor. Environmental degradation and population growth have tended to create groups of environmental refugees.

To sum up the situation in many developing countries today, rapid population growth, mass poverty, environmental degradation and slow economic growth interact with one another in ways that are harmful to both the immediate and the long-term well-being of the populations involved. Like poverty, population growth rates cannot be controlled unless there is socio-economic development.

Economic and ecological development

In recent years, governments have realized that the goals of environmental conservation and economic growth are more complementary than often realized. Most of the resources under severe stress today are essential to the long-term economic development and growth of Third World countries. Stated differently, the environment provides both the basis of and limits to economic development. Threats to the sustainability of the environment are threats to economic growth. The two cannot be separated.

Environmental protection is essential for continued economic development over the long run. Conservation and concern for resource management are in fact dictated by the goal of economic growth. Indeed, the primary objective of environmental management is to ensure that economic development and the conservation of natural resources are pursued as goals of equal importance. Helping Third World countries adequately manage their resource base amounts to promoting sustainable development, and sustainable development means a greater boost for developing economies. Only by tackling jointly the two issues of conservation and growth can we find a way to overcome environmental degradation and economic underdevelopment.

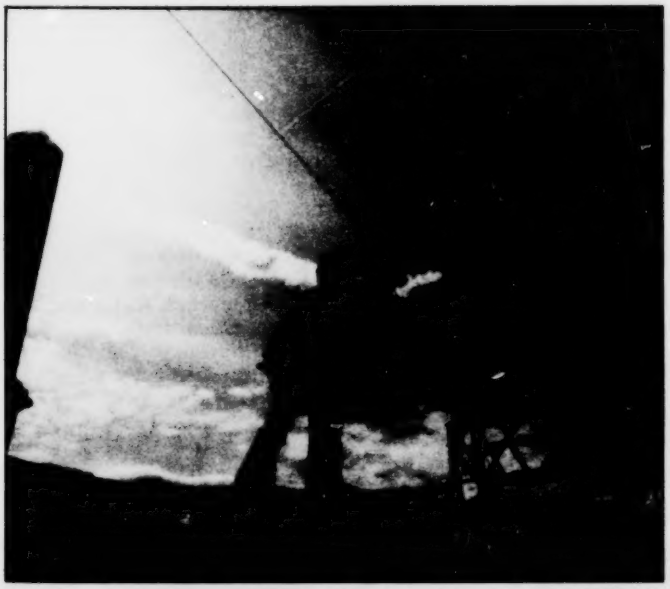
Security and environmental risks

In various parts of the world, ecological degradation is becoming a causal factor in economic, social and political unrest. Environmental deterioration leads to greater poverty. As poverty grows, frustration, resentment and civil strife mount. Examples can be found in the growing number of ecological refugees and guerrilla movements. A recent USAID report concludes that the fundamental causes of El Salvador's problems are as much environmental as political. With the projected increase in Third World population and the resulting pressure on resources, political tensions and conflicts will rise unless economic development becomes sustainable. The effects are likely to be felt in every sphere of political relations, with unsettling impacts on global stability.

National and regional ecological collapse also represent a direct threat to the commercial interests of the industrialized states. Environmental deterioration can create significant costs for our economies. In an increasingly interdependent world, higher rates of economic growth and progress in the developed world have been found to be closely linked to economic achievements in developing countries. Global-scale resource depletion can only curtail trade and growth, essential to international economic and political stability. Environmental degradation in the Sahel, or in the Himalayan foothills, has seriously affected the economies of the countries concerned and, in turn, global trade. Our long-term economic and political interests depend on the seriousness and concern with which global-scale resources and environmental and population problems are dealt with in a sustainable way.

Equity and interdependence are strong reasons to correct the existing unequal distribution of, and access to, the resources needed to meet basic human needs. The basic question today is not whether to choose between environment and development. Rather, it is how to select patterns of development that will likely minimize adverse impacts while improving environmental, and thus, economic conditions. International cooperation is essential in devising a global economic system which responds to the development needs of Third World countries. Not only must we find more effective tools to treat the symptoms of environmental mismanagement, we must also address its root causes: poverty and population growth, crippling debt, unfair terms of trade and dwindling or stationary aid budgets.

(CIDA Photo: D. Mehta)



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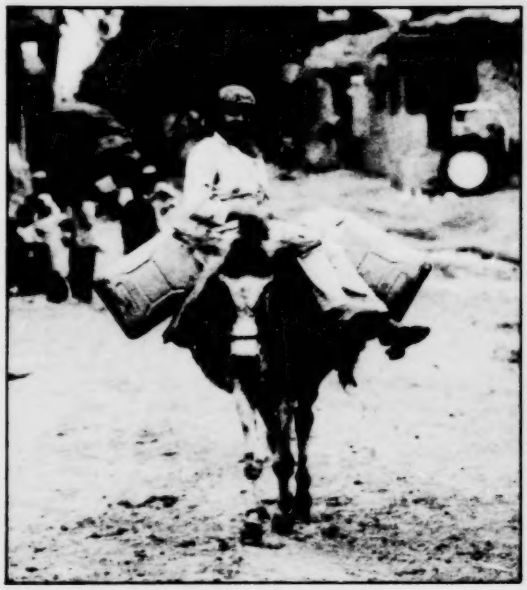

(CIDA Photo: D. Barbour)

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Sharing experiences and solutions

The World Commission on Environment and Development has been established at a time of unprecedented pressure on the global environment. Poor understanding and mismanagement of the earth's natural resources have led to rural land degradation and soil erosion, deforestation and fuelwood crises, excessive population pressures on the land, water management problems, and an increase in natural disasters such as floods and droughts. Much of the Indian sub-continent, most of sub-Saharan Africa, the Caribbean, Central America and the Andes are afflicted by serious environmental constraints. Some are on the verge of ecological collapse. Problems are so many and so acute that the international community has great difficulty in agreeing on priority regions for immediate action. But today's pressures on the planet's environment and resources are insignificant compared to what they are likely to be 20 years from now. Clearly, lessons have to be drawn from past experience and new paths need to be explored if development is to succeed. CIDA has undertaken a re-evaluation of its programs and projects in light of environmental concerns and would like to share with the Commissioners some of the lessons learned.

Third World countries have recognized in recent years that a great deal of development has not worked because it was not environmentally sound, and therefore not sustainable. If so much of development is ecologically unsound, how do we encourage development which is sustainable? There is no easy or universal answer. There are, though, some broad terms of reference that can help point the way to solving the present crisis. Donor and recipient countries alike can improve their record by emphasizing environmental management and rehabilitation, by focusing on the needs of the people, particularly the marginal groups, and by widening the debate on environment and development to involve more and more people.

The record to date of international development assistance and the environment is mixed. This is not surprising. Attempts to merge environment and development assistance within donor countries are recent and, in some cases, far from perfect. Nevertheless, three common environmental themes appear to have emerged among donors: an awareness that development assistance should not cause environmental degradation, a wish to maintain and expand natural resource productivity, and a recognition that there is a need for projects which protect the environment or aid environmental quality.

Certain universal lessons seem to emerge from bilateral and multilateral donor activities. Some of the key lessons include: the recognition that environmental management is increasingly basic to sound, sustained economic and social development; that the continued depletion of the planet's resource capital is undermining the ability to produce food for all, and preventing Third World countries from moving beyond poverty and underdevelopment; and, finally, the awareness that environment and development are interrelated and dependent on each other. Good development is sound environment, and vice versa.

Some of the most threatening environmental problems today are caused by the widespread poverty and the inequitable distribution of resources within nations and regions. Soil erosion, desertification, deforestation, mismanagement of water resources and the loss of genetic resources are examples of how the poor are eroding the very basis of their survival. To be meaningful, development assistance has to concentrate on meeting the basic needs of the impoverished and the malnourished. The need for environmental rehabilitation over vast areas of the developing world is now self-evident. The most dramatic illustration can be found in the Sahel, but it is by no means the only one. Conditions in Nepal, Bangladesh, Ethiopia and Kenya — to cite but a few — are almost as serious. Options do exist: land rehabilitation, disease control, sanitation systems and the development of agro-forestry projects are among the ways to make sustainable forms of development possible in areas where existing patterns are no longer viable because of population pressures or changes in land-use.

On the basis of past experience, CIDA believes there are a number of actions which could provide guidelines for the future. They include:

- Instituting sound environmental management and practices within donor and recipient countries.
- Upgrading and updating the environmental and natural resources data base so as to keep track of ecological degradation and provide decision-makers with sound information upon which to base environmental strategies.
- Placing more emphasis on population programs, especially education to the neediest and family-planning activities.
- Making greater efforts to increase environmental awareness and training among decision-makers and governments.

- Increasing environmentally-sound programs and appropriate technologies, in such fields as indigenous food crops, agro-forestry, small-scale fisheries, water management and wildlife maintenance.
- Expanding the institution-building process to include the development of appropriate laws, regulations or directives to ensure that desired environmental policies are implemented and that harmful practices are halted.
- Monitoring development assistance projects on a steady basis so as to avoid unforeseen environmental consequences.

Most development agencies are now moving towards making their assistance more sustainable. Yet too few have helped to strengthen the ability of Third World nations to become more environmentally aware. Assistance should be provided to help these countries ask the right questions and devise the most appropriate strategies. Environmental management is impossible without the understanding and the commitment of governments, individuals, industries and the international community as a whole.

In Third World countries, the main reasons for environmental neglect include: the lack of a real government commitment to sound environmental and resource management; the unwillingness to use already-scarce aid funds and domestic resources to further environmental goals; the preference of many governments for capital projects and short-term production gains; the inability of decision-makers to come to grips with appropriate land-reform legislation; the widespread incapacity to tackle the complex issues of population, resources, environment, and development; and inadequate and weak institutional mechanics to cope with environmental destruction.

In evaluating donor performance, several reasons have emerged as to why multilateral and bilateral agencies have not more fully integrated environmental concerns into their policies and activities. The most common constraints include: programs that are responsive — that is, they respond to priorities identified in development plans by developing countries, who pay more than 50 per cent of the costs of individual projects; the lack of political commitment and will; the reluctance of planning officers to include environmental costs in their project calculations; the perception that integrating an environmental component into projects is too complex, costly and inefficient; the need to respect Third World countries' sovereignty; the difficulty of reconciling short-term basic needs with long-term ecological objectives; the diffusion of responsibility; the lack of communication between donor agencies; and the limits imposed by tied aid.

CIDA believes that for each of these constraints, there is a solution — and every solution is an opportunity. Within donor agencies, there is a need for greater education, training information, and policy guidelines, while better coordination is needed among aid agencies. Within recipient countries, the same needs have to be addressed if impediments are to be converted into opportunities. Both donors and developing countries have to take concrete steps to integrate environmental priorities into development on an on-going basis. In doing so, efforts should be made to avoid adopting rigid stances or universal solutions. Action plans should be tailored to each country's needs and conditions.

Basic principles, however, do exist and could be applied without discrimination. Development agencies, for instance, could agree on basic guidelines — such as ensuring that each project affecting renewable resources does not exceed the regenerative capacities of the environment; refusing to finance projects that could cause severe environmental deterioration or unduly compromise public health and safety; ensuring that projects with unavoidable negative impacts be situated in areas where environmental damage can be minimized; and promoting projects that focus on reforestation, soil conservation, rangeland and watershed management, slum upgrading, renewable resource development, and wildland conservation. Improvements could also be achieved by assisting countries to integrate environment into project planning, to build up support for environmental institution-building, to strengthen cooperation between and among national and international environmental organizations, and by further encouraging the transfer of science and appropriate technology.

Most of these proposals have been tabled before; some have been implemented within certain agencies. What is required at this stage is greater understanding of the issues at stake and greater harmonization and coordination of the guidelines adopted by some donor agencies, in order to increase the efficiency of development assistance in promoting sustainable development.

Sharing experiences

As one of the world's more prosperous nations with a broad natural resource base, Canada has been seen over the last decade to have both the

responsibility and the ability to make a meaningful contribution to the improvement of environmental conditions in the developing world. Canada has been meeting this challenge in various ways: through the creation in 1970 of the International Development Research Centre (IDRC) to stimulate and support scientific and technical research by developing countries for their own benefit; through the creation of the International Centre for Ocean Development (ICOD) to help Third World countries achieve the optimum return on their fisheries assets; through Canada's ODA policies of supporting the poorest countries; and through Canada's determined stand, in accordance with Third World views, on the Law of the Sea, which dramatically increased possibilities for coastal nations to develop and protect their ocean resources and environments.

As indicated earlier, the environment has been a focus of concern within CIDA for some time. Since its creation in 1968, the Agency has devoted considerable attention to environmental and resource management issues in all its channels of delivery. In reviewing such activities, CIDA would like to share with the Commission some of the ways it has found to merge environmental considerations with development efforts.

In mid-1978, the International Institute for Environment and Development assessed CIDA's performance in the environmental field. The group found that CIDA had carried out many environmental activities and had launched some wide-ranging programs in natural resource development and management. Dryland agriculture, forestry and fisheries projects, and initiatives linking health care with water development were singled out, and CIDA's efforts in setting up training programs were recognized. Overall, the report found that Canada's performance had been positive, although it noted CIDA's informal approach at times to environmental concerns. It concluded with several recommendations calling for greater commitment, tighter environmental procedures and planning, and more environmental training for CIDA officers. Since the report, CIDA has undertaken a number of initiatives aimed at increasing its environmental participation.

In the late 1970s, CIDA created the Resources Branch to link the knowledge and technical skills of the specialist more closely with project administrators to improve environmental planning and management. During the '80s, CIDA has moved further in its consideration of environmental issues. In 1982-83, an analysis of CIDA's bilateral assistance showed a substantial proportion committed to environmental and natural resource projects, over half of which were designed to improve the quality or quantity of water for food production and domestic use. Forestry and fisheries management and development were also a relatively large component. Within CIDA's target regions, environmental assistance varied according to needs: in the Americas and Anglophone Africa, drinking water and health projects predominated; in Francophone Africa, natural resource and forestry projects were emphasized; while in Asia, the majority of commitments were to agricultural water projects. During 1982-83, CIDA also funded over 230 projects in the non-governmental sector with an environmental and natural resource component. Overall, CIDA's commitment to environmental projects compared favorably with the value of projects approved by other leading institutions such as IDRC or the International Development Association of the World Bank. In 1983, CIDA established the Office of Environmental Advisor to improve sound environmental planning and management even further.

CIDA strongly supports NGO activities in the environmental field. In fact, CIDA was the first aid agency to launch, 18 years ago, a program of cooperation between government and private organizations working in the Third World. The rationale was, and remains today, that people are the key element in development, and that governments must work with them as partners. CIDA's national and international NGO programs are providing core and project funding to organizations that undertake village-level environmental improvement projects. CIDA also supports the Conservation for Development Centre of the International Union for the Conservation of Nature, which works with Third World government agencies to introduce environmental concepts in national development planning.

In preparation for its submission to the Commission, CIDA reviewed the range of its projects with environment and natural resources components. In Asia, 63 operational projects worth $444 million are addressing the issue of environment and development, 42 other projects have been completed, while 17 are in the planning stage. In the Americas, 64 operational projects worth $123 million focus on one or several activities related to environmental management. The projects range from environmental institution-building to resource identification, with additional projects in forestry, fisheries, land and soil management, agricultural

water, human settlements, disease control, and drinking water and sanitation. One of the conclusions of this survey is that environment, as defined to include natural resource assistance, has been a major element of CIDA's program over the years. CIDA owes its environmental performance, which is much better than critics contend, to three basic thrusts: its 1975 Strategy for International Development Cooperation; its 1976 sectoral guidelines on environment; and its 1980 decision to concentrate activities in three main sectors covering a wide spectrum of Third World needs: agriculture (including fisheries and forestry), energy development and human resources.

The Strategy focused on the "basic needs" approach to development. The 1976 sectoral guidelines identified three categories of priorities to help Third World countries conserve their resource base and protect their environment — basic environmental information, training and information, and the establishment of legislation and control mechanisms — and led to a growing awareness of the interdependency between environment and development. The decision to concentrate activities in three crucial sectors was prompted by the objective of making the assistance program more efficient and more relevant to the needs of the poor.

Agriculture, fisheries and forestry

Agriculture is the cornerstone of socio-economic development in the Third World. The greatest challenge to increased agricultural development is to reach small farmers, and support their efforts to improve their productivity and income, and thus reduce hunger, malnutrition, poverty and environmental degradation. This, in essence, is what Canada is doing by sharing its agricultural skills where these are relevant to Third World needs, particularly in research, food storage, processing and distribution. Activities focus on food production for domestic consumption as opposed to cash-crops for export.

In recent years, developing countries have devoted considerable attention to agricultural improvements. But as their resources are often limited, agricultural performance has varied greatly between countries and regions. While cereal yields per hectare have increased by 24.9 per cent in Asia and 23 per cent in Latin America, in Africa — which has a high population growth rate — food production is down not only per capita, but also per hectare.

There are various ways in which CIDA lends support to agricultural development. Through its multilateral, bilateral and special programs, CIDA is providing assistance at all phases of the food chain, from basic research and extension work to inputs such as seeds, fertilizers, and irrigation, and output factors such as storage and marketing facilities.

CIDA provides bilateral assistance to help Third World countries identify and implement their agriculture priorities, contributing over $1.5 billion to some 400 projects since 1968. Internationally, CIDA has provided over $460 million to UN agencies, financial institutions and research centres which fund agricultural programs. In addition, CIDA is supporting NGOs that have agricultural projects in the Third World. Many NGO projects are in community development, especially in rural areas, with the accent on assisting communities to provide their own basic services. Clean water supply, small dams and irrigation schemes for food production, farmers' organizations, training and food storage are among the grass-roots projects to which CIDA contributed nearly $63 million in 1984-85.

The bulk of CIDA's **fisheries** assistance — more than 80 per cent — has been provided through bilateral and Special Programs Branch activities, emphasizing resource management, aquaculture, fish processing, distribution, marketing and training. On average, about $9 million a year has been allocated to fisheries development projects since 1980. Overall, between 1970 and 1983, CIDA has provided nearly $100 million for projects to help an estimated 2.4 million fishermen in over 30 countries. Over 55 per cent of the funds went to Africa, 27 per cent to Latin America and the Caribbean, and the remainder to Asia and the Pacific. For the most part, the assistance went to the poorer and less developed countries in these regions.

CIDA's focus on small-scale fisheries has prevented the major problems experienced by other donor agencies, which have concentrated funding on the industrial sector. By working towards self-reliance for the fisheries sector in the Third World, CIDA supports the efforts of local fishing communities to improve their livelihood and generate economic activity, while managing their resources in a sustainable manner.

Canada has been funding **forestry** projects in the Third World since the early '50s, with support for forestry-related activities amounting to about 15 per cent of Canada's assistance in the agriculture

sector. Over the past 30 years, Canadian engineers and foresters have worked in over 80 developing countries. Up to 1984, CIDA had allocated $500 million to 107 bilateral forestry projects in Asia, Africa, Latin America and the Caribbean. About 60 per cent of the projects were devoted to the sustained production of forest resources, the remainder targeted to rational exploitation and use. Overall, nearly 50 per cent of the funds were allocated to resource inventory, planning studies and institution-building. Most of CIDA's forestry activities respond to some environmental concern, from reforestation in the Sahel to rehabilitation of watersheds in Asia and Latin America.

CIDA recently updated its forestry guidelines in light of the severe stress being experienced by tropical forests. The result is a strategy to help developing countries place existing forest resources under sound management, to further the rational use of forest lands, including scarce tropical resources, and to create new forest resources. Priority is given to sound management and to those activities that will increase the availability of fuelwood, fodder and food.

Funding is also provided through multilateral channels to organizations such as the FAO, the World Bank, the UNDP and the World Food Program. Regular contributions to the Asian, African and Caribbean Development Banks also support forestry projects. In addition, CIDA is funding more than 125 forestry projects carried out by Canadian NGOs. Over 300 such projects have been completed by these organizations on CIDA's behalf since 1968. Most involved tree planting by and for local rural communities, thus helping people to improve their standards of living and meet their own needs while also improving forest resources.

Energy

For most people in the Third World, shifting oil prices have had little significance. For them, the real energy crisis is a shortage of wood. The search for fuelwood is leading to increased erosion, and turning arable land into deserts, with devastating results on agriculture. Africa is particularly vulnerable. Of its hydroelectric potential, estimated at 223 billion watts, only 2 per cent has been exploited.

Canada has chosen energy as one of its sectoral priorities because of its close links with environment and development, and CIDA's bilateral assistance to energy projects is one of the highest among donor countries. CIDA has been involved in providing drilling and exploration equipment for oil and gas, in energy planning, in management and personnel training, and in hydroelectric power generation and distribution. Complementing these major undertakings are initiatives in smaller-scale energy technologies such as biogas cooking units, solar energy, wind generators, mini-hydro equipment, and methanol and ethanol plant components. In addition, the government recently announced that it will devote $15 million to solar energy using photovoltaic technology in various countries of Francophone Africa. This technology appears to be one of the most promising ways of meeting the needs of isolated communities

Overall, CIDA's assistance program is modest compared to what is required to stop environmental degradation. The international community must guarantee sufficient long-term assistance to the countries that need to improve their resource and environmental management. Environmental destruction can and must be stopped. CIDA believes that focusing on the needs of the poorest and emphasizing the development of human potential, the stabilization of agricultural land, the restoration of the food balance and improvements in energy use can help Third World populations overcome the threat and live in harmony with their environment.

(CIDA Photo: P. Chiasson)

(CIDA Photo: P. Chiasson)

(CIDA Photo: M. Dompierre)

(CIDA Photo: P. Morrow)

Sharing new approaches: from reactive to preventive strategies

Since Stockholm, significant achievements have been made in raising public awareness and in monitoring and defining environmental issues in scientific and practical terms. Environmental questions, once thought straightforward, are now seen as highly complex issues, embracing several fields and jurisdictions. Advances in science and technology have provided an insight into intricate environmental linkages. For instance, the depletion of the ozone layer, the build up of carbon dioxide, acid rain and nitrogen shortages in the soil — once treated as separate problems — are now known to be closely interrelated. Similarly, population pressures, soil erosion, deforestation, desertification and water management problems in developing countries are all intricately linked. Neglect in any one area can lead to serious consequences in another. This concept of interrelatedness, expressed by the late Barbara Ward in *Only One Earth*, was challenging a decade ago. Today, it is commonplace, expressed and embodied in international efforts such as the World Conservation Strategy, the Plan of Action to combat desertification, the World Soil Policy, the Global Possible Conference, and the UN World Commission on Environment and Development.

Although more is known about our environment now than in the early '70s, major gaps still exist in our knowledge. Little is known, for instance, about the exchange system flows between ocean currents, wind patterns and climatic changes. Moreover, knowledge and understanding of environmental problems have not always resulted in effective action. Improved awareness and support have been largely confined to the national level; interest in international cooperation has actually declined.

Although the past decade has produced innovative solutions to certain environmental problems, improvements have been, by and large, limited to the industrialized countries, which have enacted rigorous legislation and are able to support the research and testing of anti-pollution devices. These countries, however, still face the serious problems of acid rain, water pollution, toxic wastes, land degradation, marine and atmospheric pollution, and dangerously high carbon dioxide levels.

Most developing countries can afford neither the "react and cure" policies of the industrialized nations, nor the costs of stringent pollution controls. The result has been a massive deterioration of their environment. This is especially true of the least-developed countries with fragile ecosystems, where the economic prospects remain dim and the situation is even more desperate than 10 years ago.

For the poorer groups in these countries, critical environmental issues translate into basic daily preoccupations: food, fuel and shelter. These people interact with and affect the environment most directly, and they are often compelled to destroy the resources necessary to cope with starvation and poverty.

In *Mandate for Change*, the Commission has identified, under the Standard Agenda, a number of key environmental issues having major implications for development. They include environmental pollution, natural resources and human settlements, to which a fourth group of cross-cutting management issues was added. These issues sum up much of the research done to date. Although this approach has the advantage of pointing to significant progress achieved in several areas, it focuses more on the effects of environmental problems than on their sources and causes. It also tends to treat environmental and development issues separately. To overcome these limits, the Commission has suggested an Alternative Agenda that provides a comprehensive horizontal focus on environment and development. CIDA would like to share with the Commission some of its views and concerns as to the common problems likely to hinder sustainable development.

Population, environment and development

There is no simple correlation between development and the environment. Some patterns of development have improved environmental conditions; others have degraded them, sometimes irreversibly. Some developing countries have experienced severe stress following inadequate socio-economic development and rapid population growth. Many of them will exceed the limits of their land's carrying capacity by the year 2000 if population growth is not curbed; about 65 least-developed countries could have in total 500 million people they would be unable to feed with domestic food supplies. In those countries, land abuse, deforestation and water scarcity problems are all closely tied to poverty and population pressures.

The interactions between population growth, land and water abuse and mass poverty make it difficult for Third World countries to improve their socio-economic and environmental situation. It was

noted earlier that the environment cannot be improved in conditions of poverty, and poverty cannot be overcome without development and higher standards of living. The same could also be said about population growth. Population policies can have only limited success when poverty remains widespread; and developmental and environmental efforts are, or can be, limited by rapid population growth.

Since the Bucharest Conference on Population 12 years ago, some countries have achieved substantial progress in population policies. In Asia, countries have succeeded in bringing about a significant reduction in population growth rates, while in Latin America fertility is also on the decline. Experience has shown that economic growth has helped to change attitudes towards fertility in many countries, and that the main cause of population problems remains widespread underdevelopment. Population policies are not a substitute for social and economic growth. Only economic improvement can curb population growth and stop environmental degradation.

Population and development policies have the greatest chance to succeed when they are responsive to individual, family and community needs. By its very nature, a population policy must be based on extensive grass-roots participation. Improving the role and the status of women, CIDA believes, is a key factor in this regard. Without the complete integration and participation of women in development programs, progress in improving the general quality of life will most likely not be achieved. Family planning, closely related to the improvement of the role of women, has been identified as a key determinant in curbing population growth. It is also one of the great unmet needs of developing countries. As indicated by Prime Minister Brian Mulroney: "Canada recognizes the complexity of the interrelationships between development and population. Designing and implementing effective integrated approaches to practical action is difficult, but it is a challenge we must meet. Canada therefore wholeheartedly supports the worldwide efforts to improve the status of women, to promote primary health care and to ensure the protection of the environment in a sustainable development process."

Over the last decade, experience has shown that international cooperation in the field of population control is essential for progress. Substantial improvements have been made. But there is an urgent need to provide even further economic and technical support to developing countries trying to solve their demographic problems. Overcoming poverty, population pressures and environmental degradation will require fairer terms of trade and greater international assistance, through community-sponsored projects to protect renewable resources. Over the long run, it is obvious that developing and developed countries have a common vested interest in promoting development. National and international actions and support are required now more than ever.

Food security, agriculture, forestry, energy and the environment

Soil has been described as a nation's most precious resource, for the bulk of all food production depends on it. Over the last decade, environmental monitoring has resulted in a comprehensive inventory of the earth's agricultural potential. It is known, for instance, that the frequency of drought limits agriculture in 44 per cent of Africa; flooding affects 19 per cent of southeast Asia; shallow soils affect 38 per cent of north and central Asia; and soil composition curtails agricultural production in 22 per cent of North America. In fact, only about 11 per cent of the world's land area is suitable for agriculture. The rest is either too cold, too wet, too dry or too poor. Even Canada has far less prime agricultural land than previously thought: only 11 per cent of our land resource can support any form of agriculture, less than 5 per cent is capable of producing crops, and less than 0.5 per cent has no physical limitations to crop production.

Prime farmland not only has to cope with the spread of urbanization, it must also face pressures stemming from land mismanagement. Land degradation is a worldwide concern that cuts across boundaries, affecting agriculture and forestry. Basically, it results in the depletion of the soil's productive capabilities. Processes of degradation include the loss of topsoil through erosion, chemical changes due to salinization and acidification, and physical changes such as soil compaction. Soil degradation exists in all countries of the world, rich and poor alike. It is estimated that Canadian farmers are losing over $1 billion per year in farm revenues as a result of poor land practices, which were recently described by a Senate committee as creating the most serious agricultural crisis in Canada's history.

Canada, however, is in a much better situation than most Third World countries. For one thing,

temperate lands have better soils than the tropics. Centuries of torrential rain have washed out many of the soil's nutrients in developing countries. Most of Africa's soil, for instance, is infertile sand and laterite that can barely hold water. Moreover, it erodes rapidly compared to the compacted soils of the temperate zone. A hectare of good soil in Europe or North America can yield as much harvest in one year as 10 hectares of tropical soil in Latin America or Africa.

Few resource problems are so important yet so little publicized as land degradation. It has been aptly described as the quiet crisis in the world economy. Soil erosion, the single most important factor in land degradation, is a natural and on-going process. Within a balanced ecosystem, the soil is usually regenerated at the same time as it is removed. But people have upset the balance. It has been estimated that humans increase the rate of natural erosion by at least 2.5 times. This has led over the centuries to the destruction of more than 20 million hectares of arable land.

Half the countries of the world and more than 50 per cent of all arable lands are experiencing soil degradation at unacceptable levels. It is estimated worldwide that over 25 billion tonnes of soil are lost annually from croplands. At this rate, 275 million ha — or 18 per cent of all arable land — will be lost by the year 2000. By 2025, the same amount again could disappear. In the developing world in particular, soil loss is a serious threat. Ethiopia, for instance, loses as much topsoil as the U.S., though it is less than one-sixth the size. Overall, half of the Indian subcontinent suffers from land degradation. In the northern part of Africa, 35 per cent of the land is thought to be affected. In western Asia, the proportion is estimated at 65 per cent.

Generally, erosion occurs when farming practices fail to take conservation measures into account. Increased productivity is one of the main reasons soils are rapidly being depleted. In the industrialized countries, pressures resulting from economic necessity, international prices and technological progress have contributed to the problem. In the developing countries, the burden of providing food for a growing population has increased pressure to expand cultivated areas, resulting in more and more marginal land being brought under the plow. In both cases, erosion results from demanding more that the soil can naturally yield. In the Himalayas, soil and water mismanagement have contributed to the increase and severity of flooding in India. Bangladesh and Pakistan. All over the world, pressures on farmland have accelerated the loss of topsoil, reducing the amount of land available for growing food and increasing the cost of food production.

Sedimentation, a by-product of water erosion, can dramatically shorten the life of reservoirs, hydroelectric utilities and irrigation systems. The list of reservoirs that have seen their capacity reduced by half is growing each year and the phenomenon is not solely limited to developing countries. All over the world, the same basic factors are at work: overexploitation of prime and marginal lands has triggered erosion, resulting in soil ending up in places where it does more harm than good.

The immediate results of soil erosion are economic: a decline in productivity and farm revenues, and a disruption of agricultural trade patterns; in the medium run, growing indebtedness for farmers and countries and increased food imports. Ultimately, the long-term effects are social: as productivity declines, malnutrition sets in and the vicious circle of poverty and environmental degradation increases. The social effects of erosion are appalling in Africa, where record population growth and widespread land degradation have resulted in a tragic crisis.

Erosion is also closely associated with the destruction of the protective, productive and regulative functions of forests and trees. Forests are natural ecosystems in a constant state of change. As with soils, there are sharp differences between temperate and tropical forests, notably in their biological makeup. Temperate forests often harbor rich and nutrient soils, while tropical forests are rooted in very poor soils, with most of the nutritive elements stored in the trees. As a result, cleared tropical forests rapidly lose their biomass, becoming barren within a few years. The fate of tropical forests has become, over the years, a cause of growing concern. Tropical forests form a green belt around the equator, accounting for about 8 per cent of the planet's surface, and harboring about half of all growing wood, and half of the earth's plant species.

In recent decades, more than 40 per cent of the world's tropical forests have been cleared, logged or degraded, with another 12 million hectares cut down each year. Although the problem exists throughout the Third World, severe effects can be found in Asia, the Sahel, the horn of Africa, and Central America. In east Africa, deforestation and massive soil erosion are the region's most pressing

environmental problems. Subsistence agriculture and fuelwood cutting are largely to blame. In drier lands, deforestation is leading to desertification which, once started, has irreversible and catastrophic effects. The tragedy of the Sahel is but one example of the serious environmental degradation caused by deforestation.

By the year 2000, it is expected that developing countries will have lost 40 per cent of their remaining forests, mainly as a result of land-clearing and growing demands for wood supplies and fuelwood. Exploitation of forest resources is seen as a way of coping with poverty and population growth. But although the rural poor are often held responsible for environmental degradation, few options are available to them. They are caught in a chain of events that forces them into destructive patterns of land-use to meet the basic needs for fuel and food. The depletion of tropical forests is a classical case of how the rural poor in developing countries are forced to destroy tomorrow's livelihood in order to survive today. It is linked as much to poverty as it is to rapid population growth and unequal land distribution. Forests, soil moisture and water retention, and agricultural productivity are all intricately linked. Deforestation cuts across those links with land degradation as the result.

Deforestation not only results in the loss of a productive resource base, it also threatens valuable genetic resources. Tropical forests harbor no less than half of the world's plant species, constituting by far the richest ecosystem on earth. A single hectare of tropical forest can be the refuge of over 230 tree species, compared with 15 species normally found in an hectare of temperate forest. Through their biological diversity, tropical forests offer such useful products as oils, gums, latexes and bamboo. Tropical genetic resources support our well-being in various ways: through medicine, agriculture, industry and energy.

The rate of extinction of tropical species is so severe that it has been described as an extinction spasm, and future projections are of no comfort. In fact, it could surpass any evolutionary episode since the beginning of life 3.6 billion years ago. The preservation of genetic diversity is as essential for agricultural, forestry and fisheries production as it is for health and for improvements through scientific and industrial innovation. It is a matter of both insurance and investment.

In Africa, deforestation means desertification. Under intensive land-use pressures, the fragile, dryland ecosystem shows signs of stress: the soil becomes vulnerable to wind and water erosion, crop yields drop, sand dunes form, and farmers abandon their land. Erosion is both a major cause and a result of desertification. Unlike drought, it does not stop once rainfall patterns return to normal. Land degradation from desertification continues until productive soils become barren. No matter where the problem appears, the causes are similar: over-exploitation of renewable resources through population pressure, over-cultivation, over-grazing, poor irrigation practices and deforestation. In turn, the underlying causes are poverty, mismanagement, rural neglect and inequitable terms of trade.

The destructive patterns of deforestation and desertification can and must be stopped. Fortunately, countries all over the world have acknowledged the growing threat and are taking action, nationally and regionally, to stop the destructive process. There is a new and growing awareness in developing countries of the importance of forestry management, which is the keystone of a natural resource conservation strategy. There remains a crucial need to improve resource data bases and to introduce sound and scientific management practices. More than half of CIDA's forestry projects are devoted to forest resource development. As well, institutional weaknesses must be overcome, and projects in forest protection and conservation should be encouraged. Forest management also requires intensive reforestation efforts. According to the World Bank, 55 million hectares of plantations will be needed by the year 2000 to meet fuelwood needs alone.

Community or social forestry, as it has come to be known, represents a viable solution. The objectives of social forestry include meeting domestic needs for fruit, fodder and fuelwood, stabilizing soils and preserving watersheds, providing windbreaks, increasing crop yields, and improving farmers' living conditions while providing employment opportunities in rural areas. A vital element of success in these programs is community participation. Villagers must be actively involved in all stages.

All these efforts will require increased technical and financial support. The focus of all actions should be the poorest and the landless, those who affect the environment most directly. Our greatest challenge is to reach these people and support their efforts to improve their productivity and income, while managing their environment in a sustainable matter. International actions to protect tropical forests are getting under way. But greater

assistance will be needed if the threat of forest depletion is to be averted. There is no doubt that well-conceived efforts can succeed. There are numerous examples of farmers responding positively to sound environmental development projects.

As for agriculture, even in countries where food production has increased, small farmers still face major constraints — from basic research and extension work to the quality of the seed, and the availability of irrigation, storage and preservation. Adequate incentives, transport, marketing and credit facilities are needed to improve the productivity of small-scale farmers and reduce the stress on the environment.

Human settlements, environment and development

By the year 2000, just 14 years from now, the urban population of the Third World is expected to double, reaching more than two billion. According to UN estimates, the urban population of the developing countries represented some 30 per cent of their population in 1980; by the turn of the century, it should represent about 43 per cent of the total. Rapid urban growth tends to be concentrated in big cities, which have registered a rate roughly double that of overall urban growth.

In 1980, there were 22 cities in the developing world with populations exceeding four million. Projections indicate that by the turn of the century there will be 61. Much of urban growth is characterized by the spread of slums and squatter settlements. In some cities, up to 65 per cent of the population live in squatter settlements, without water, sanitation, public health services and decent housing. The social and economic consequences of overpopulation in urban areas are enormous. They include social inequality and increased deterioration in the levels of public services and sanitation.

Because of the misallocation of resources between urban and rural areas, because of the emphasis on economic development without due regard to appropriate social policies, and because of the deterioration in both the natural and human environment, the gap between the rich and poor has been steadily widening. These conditions can be expected to create social tension and political instability.

The poor operate economically and socially within the informal sector, which in some countries accounts for over 50 per cent of all economic activity. To enable the poor to make the best use of what they have, governments should be encouraged to provide basic services, such as:

- Security of land tenure, right to the use of land for housing.
- Basic infrastructures, water, sanitation, garbage collection.
- Social services, schools and clinics.
- Appropriate credit for business and home-building.
- Technical services to improve basic skills.

These services are necessary in order to help create an environment conducive to people doing more for themselves. They would greatly improve the quality of life of the urban poor, while at the same time benefiting the natural environment.

It would be most appropriate if such a program in the cities was undertaken in the context of a regional plan. A region may contain a number of cities and towns. Solutions have to be worked out to decrease the number of people expected to flood into the major cities over the next two decades. One answer might be to encourage the growth of regional towns and villages.

Rural communities should also share in the development of such services. Within this framework, a regional environmental program dealing with afforestation, soil erosion, and self-sustained agricultural development would be effective. The improvement in the quality of life of the entire population could be related to the carrying capacity of the environment; and the level of development, which must be self-sustaining, could be linked to the absorptive capacity of the region as a whole.

As a matter of policy, CIDA has always been supportive of programs designed to improve the quality of the environment, both natural and human. In recent years, there has been an increasing emphasis in both urban and rural programs on improving the quality of life of people living in project areas, and improving the capacity of all sectors to participate in national development efforts.

Developing countries will witness major increases in urban population in the years to come. Addressing population and environment issues efficiently requires coordinated and concerted efforts. The expertise and experience needed to deal with these pressures will increasingly be required in order to cope with long-range impacts and establish more rational patterns. Sound family-planning programs,

efforts to improve organizational structures and increase grass-roots cooperation in the transfer of appropriate technologies, education and training facilities, as well as better land-use planning and control, are among the priorities.

Looking ahead to the year 2000

A new international environmental agenda has emerged, with issues different from those of the '70s. It deals less with domestic matters than with global concerns: soil erosion, deforestation, mass extinction of species, mismanagement of water resources and rapid population growth.

We now possess a good understanding of some of the factors that are shaping our future. Population growth emerges as the dominant element in developing countries, influencing and cutting across all major sectors of activity. The 21st century will see a doubling of human population with greater pressures on natural resources, which in turn will lead to increased deforestation, soil erosion, losses in agricultural productivity and consequent environmental degradation. Most of this will occur in the developing countries.

The relationship between food production and population is increasingly worrisome. On a global scale, progress in agriculture is expected to continue, although some countries will experience severe constraints in food supplies. Despite advances in agricultural methods, half a billion people are chronically undernourished. Millions will be added each year unless land degradation is halted. For many of the poorer countries, population projections are considerably in excess of what local land resources can support. Developing countries will probably increase their cereal imports, and the number of malnourished will rise in Africa, which is likely to experience serious food and water problems. Without substantial changes in the management of water, land and forest resources, it will be difficult to support the population projected for the next century.

Other ecological disasters are not in the future, they are happening now, part of our global reality. Genetic resources are in jeopardy, and environmental refugees can be found in many countries of Africa, Asia, Central America and the Caribbean. If these environmental issues are not addressed, a future world scenario will include increased poverty, frustration and civil strife. Destabilization and turmoil will prevail, and the industrialized countries will not remain unscathed.

The future, in large part, depends on the way we deal with the seriousness of a global-scale depletion of renewable resources. Our long-term economic and political interests rest on the success with which developing countries' resources can be managed wisely for sustainable development.

Meeting the needs of the poor for basic services such as education, health and sanitation will require substantial changes in policy. National and international actions are needed to ensure that appropriate technologies are made available to increase productivity, and greater emphasis will have to be placed on improving the welfare and productivity of marginal groups, particularly landless laborers and women.

A series of reports in the '80s lead to the conclusion that we have not only the necessary instruments, but also the knowledge and the skills to overcome the present situation. Some reports have put forth a list of optimistic prognoses, suggesting a number of initiatives and specific steps to address the critical issues — recognizing that while gloomy predictions could be accurate, they need not be. In other words, solutions are within our grasp, and it is possible to envisage a more secure and more sustainable world, both economically and environmentally. What is needed is greater will and increased international cooperation.

Fortunately, positive signs exist that indicate, on all sides, a broader understanding of the importance of resource management. Environmental factors in world development have begun to play an increasingly important role, and most Western aid agencies are now moving towards making development assistance more sustainable. Recipient countries are also devoting considerable attention to natural resource issues and are adjusting their policies accordingly.

Multilateral financial institutions have substantially altered their lending policies to give priority to environmental rehabilitation. Numerous institutions for environmental protection have been created and strengthened in developing countries, although much still needs to be done.

Another positive sign is embodied in the World Conservation Strategy (WCS), a revolutionary document launched in 1980 by the International Union for the Conservation of Nature (IUCN), with the assistance of UNEP and the World Wildlife Fund, and in collaboration with the FAO and UNESCO. The WCS represents a worldwide effort to come to grips with resource limitation and environmental degradation, while increasing the economic development essential to meet basic human needs. It provides decision-makers with an overall blueprint for managing the environment in a sustainable way. Its basic argument is that conservation and development are so intricately linked that conservation cannot succeed without sustainable development, and development cannot be sustained without conservation. Some 40 countries now

(CIDA Photo: D. Barbour)

(CIDA Photo: P. Morrow)

(CIDA Photo: P. Morrow)

(CIDA Photo: G. Chapman)

have national conservation strategies in preparation or completed. Bilateral aid agencies, including CIDA, are funding more of them in the South. Some have already been successful in promoting, in government circles and among the public, ideas and examples of sustainable development.

The Commission, as does CIDA, believes that it is possible to harness science and technology in ways that are environmentally sound, and that it is possible to expand food production and to develop energy, industrial processes and human settlements in ways that are ecologically viable. But to achieve these objectives, the Commission warns that substantial changes are required: changes in perspectives, attitudes and life-styles, changes in the nature of cooperation between states, and above all changes in the level of understanding and commitment by people, organizations and governments.

Public awareness is a very important element of a society's capacity to deal with environment and development issues. To some experts, the root cause of our environmental crisis is that too many governments and people still tend to take the planet's renewable resources for granted.

Greater efforts to increase public knowledge and public participation are needed. Environmental progress requires the support of an informed and alert public opinion. Governments, voluntary organizations and the media have a duty to inform the population of the critical issues, especially about the links between environment, development and security.

Options and solutions exist. In a sense, we know what needs to be done to protect the environment. We also know that this calls for an era of unprecedented global cooperation and commitment to deal with the critical issues of environmental degradation. Failure to respond will have ominous consequences.

Global action to protect the environment requires the concerted efforts of national governments and donor agencies, but ultimately public opinion is the major force that will shape and modify existing policies. Greater emphasis is required to educate people on the need to defend the environment and to attain global peace. We must start thinking and acting as citizens of one world. We share not only an interdependent world economy and environment but, above all, a common future.